UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/765,062 | 01/28/2004 | Jung-Oh Woo | 46220 | 9468 |

1609 7590 03/09/2007

ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P.
1300 19TH STREET, N.W.
SUITE 600
WASHINGTON,, DC 20036

| EXAMINER | |
|---|---|
| WASHBURN, DANIEL C | |
| **ART UNIT** | **PAPER NUMBER** |
| 2628 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|---|---|---|
| 3 MONTHS | 03/09/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/765,062 | WOO, JUNG-OH | |
| | Examiner | Art Unit | |
| | Dan Washburn | 2628 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *14 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed 12/14/06 have been fully considered but they are not persuasive.

As to the applicant's argument that the Kfoury and Smith references, separately or in combination, do not disclose nor reasonably suggest a direction detecting section for detecting the direction in which the mobile terminal is placed, or a method of detecting a direction in which the mobile terminal is placed, the examiner contests that both Kfoury and Smith teach exactly this.

Kfoury describes an electronic display device with a rotatable keypad. The orientation of the rotatable keypad relative to the housing of the electronic device determines the orientation of the display area. The rotatable keypad includes a sensor that sends a sensor signal to the processor within the electronic display device, and the processor modifies the display drivers to produce a display image with the correct orientation (paragraph 0015). Figures 1-4 and paragraphs 0017-0020 describe the four possible orientations of the display device. As a user rotates the display device, while not rotating the keypad (or, equivalently, rotates the keypad while not rotating the display device), the sensor within the rotatable keypad detects the orientation of the keypad relative to the orientation of the display device and adjusts the displayed image accordingly. The sensor within the keypad that detects the orientation of the keypad relative to the orientation of the display device is considered a direction detecting section for detecting the direction in which the mobile terminal is placed. In this case

mobile terminal may be rotated through each of the four possible orientations, while the keypad remains stationary, or the mobile terminal may remain stationary while the keypad is rotated through each of the four possible orientations. In both cases the mobile terminal is rotated relative to the keypad, which means the mobile terminal is rotated relative to a user, as a user is considered to be positioned in the same orientation as the keypad. Thus, the direction in which the mobile terminal is placed is considered to be rotated through four possible orientations and the sensor within the keypad is considered to generate first through fourth direction detecting signals, based on the detected orientation of the display device.

Further, Smith describes a device and method for changing the orientation and configuration of a display of an electronic device. The device is able to switch from a first display orientation to a second display orientation, and in one embodiment the orientation and configuration of the viewing area is automatically converted through an orientation sensing/switching device within the electronic device that senses the orientation of the electronic device with respect to a reference position (paragraphs 0006 and 0009). The orientation sensing/switching device provides a switch that automatically activates in response to the orientation of the device with respect to a reference orientation. The sensing/switching device can be any type known in the art, such as a mercury switch or other liquid switch, a mechanical gravity switch, a combination moveable magnet and Hall effect switch, a combination moveable magnet and Reed switch, or equivalents thereof (paragraph 0018). Thus, the sensing/switching device is considered a direction detecting section for detecting the direction in which the

mobile terminal is placed, where the orientation and configuration of a display of the electronic device is adjusted based on the signal produced by the sensing/switching device.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 4, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kfoury et al. (US 2003/0044000) in view of Smith (US 2002/0033836).

As to claims 1, 7, and 8, Kfoury describes a method and a picture display device in a mobile terminal, comprising: a direction detecting section for detecting the direction in which the mobile terminal is placed and generating first, second, third, and selectively fourth direction detecting signals; a display controller for outputting display data in an upright direction when a first direction detecting signal is generated, in a direction turned 90° clockwise when a second direction detecting signal is generated, in a direction turned 180° clockwise when a third direction detecting signal is generated, and in a direction turned 270° clockwise when none of the first, second and third direction detecting signals are generated, or selectively when a fourth direction detecting signal is generated; and a display section for displaying the display data. Kfoury also describes generating a full size display of data when the display is turned 90° or 270° clockwise

and generating a standard display of data when the display is not adjusted or is turned 180° clockwise. For example, Kfoury includes Figures 1-4, which illustrate four orientations of a picture display device in a mobile terminal with a display section for displaying data. Figure 1 describes the picture display device with an image and keypad in their typical positions. In this orientation the keypad is sending a signal, considered a first direction-detecting signal, to the display, which tells the display controller to output the display data in an upright position (paragraph 0015). When the device changes orientation the keypad is rotated 90°clockwise a second direction-detecting signal is sent to the display and the display is rotated 90° clockwise, as offered in Figure 3 (paragraph 0019). When the keypad has been rotated 180° clockwise a third direction-detecting signal is sent to the display and the display is rotated 180° clockwise, as offered in Figure 4 (paragraph 0020). Finally, when the keypad has been rotated 90° counterclockwise, or 270° clockwise, a fourth direction-detecting signal is sent to the display and the display is rotated 270° clockwise, as offered in Figure 2 (paragraph 0018). The fourth direction-detecting signal is considered to be selectively generated, as it is only generated when the keypad has been rotated 270° clockwise, and the display reacts to this selectively generated signal by rotating 270° clockwise in order to properly align itself with the current state of the keypad. Kfoury discloses that in Figures 2 and 3 the text is displayed in a landscape type view rather than the portrait view of Figures 1 and 4, this is considered generating a full size display of data when the display is rotated 90° or 270° clockwise, as opposed

to the standard display of data when the display is not rotated at all or is rotated 180° clockwise paragraphs 0018 and 0019.

Kfoury doesn't describe that the display controller determines a display data size to be output based upon the detected direction or that the display controller displays data in the determined display size based upon the detected direction. More specifically, Kfoury doesn't describe generating reduced size display data and displaying the reduced sized display data in an upright direction or in a direction turned 180° when a first or third direction is detected, respectively.

However, Smith describes a device and method for changing the orientation and configuration of a display device in an electronic device. Smith describes that the display device will automatically adjust the orientation and/or configuration of the viewing area of the display through an orientation sensing/switching device within the electronic device that senses the orientation of the electronic device with respect to a reference position (paragraphs 0006 and 0009). Smith further describes that the orientation sensing/switching device can be a mercury switch, mechanical gravity switch, or a combination moveable magnet and Hall effect switch (paragraph 0018). Finally, Smith discloses Figures 3 and 4, which describe first and second display modes for the device. Figure 3 illustrates a full screen display, while Figure 4 illustrates a rotated display where some of the effective viewing area is not utilized as the rotated displayed image is only fully visible if it is reduced in size (paragraph 0017). It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Kfoury the method of generating reduced sized display data and displaying

the reduced sized display data in an upright direction or a direction turned 180° when a first or third direction is detected, respectively, as taught by Smith, in order to allow a complete image to be displayed on the display device regardless of whether the image is designed to fit a landscape or portrait display and whether the device is oriented in a landscape or portrait orientation. The advantage of this flexibility is that a user will always be able to see an image in its original form (e.g. no distortion or cropping is applied to the image in an effort to make it fit on the display screen).

With regard to claims 3 and 4, Kfoury describes a picture display device wherein the direction detecting section is mounted in a folder housing and a main housing of the mobile terminal. For example, Kfoury includes Figure 6, which illustrates a grid of key sensors 636. The grid of key sensors provides a sensor signal to the device's processor that represents the orientation of the keypad, and thus controls the orientation of the display paragraph 0021. Figure 6 also includes top cover 601 and bottom cover 605. Covers 601 and 605 can be considered a folder housing, and the array of key sensors is indirectly mounted on this folder housing. The grid of key sensors is initially mounted onto printed circuit board 603, which is considered a sensor, or main, housing paragraph 0016, and this printed circuit board is mounted onto the folder housing created by covers 601 and 605.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kfoury et al. (US 2003/0044000) in view of Smith (US 2002/0033836) and further in view of Fuchimukai et al. (US 2001/0007469).

Concerning claim 2, Kfoury describes a picture display device with a direction-detecting device that generates first, second, third, and fourth direction detecting signals, as described in the rejection of claim 1. Kfoury also describes using a magnetic Reed switch that is activated by a magnet to detect the orientation of the device and send the appropriate direction-detecting signal to the display (paragraph 0034).

Kfoury doesn't describe that the magnet is disposed within a guide chamber and that the magnet is able to move around to activate first, second, third, and fourth direction detecting Hall sensors.

However, Smith describes a mobile display device that adjusts the orientation of its display based on the orientation of the device. He further discloses that the orientation device can be of any type known to one skilled in the art, such as a combination moveable magnet and a Hall effect switch, a combination moveable magnet and a Reed switch, or equivalents thereof (paragraph 0018). Smith's description of the moveable magnet inherently means that the magnet is contained within some sort of guide chamber that is large enough to allow the magnet to freely move about. It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Kfoury the combination moveable magnet and Hall effect switch as taught by Smith in order to create a cheaper and more reliable mechanism for detecting the orientation of the device and rotating the display accordingly.

Kfoury in view of Smith doesn't describe the guide chamber having first, second, third, and fourth extending portions corresponding respectively to the first, second, third, and fourth possible orientations of the display.

However, Fuchimukai discloses a digital camera having a guide chamber with a first, second, third, and fourth extending portion, which correspond respectively to the first, second, third, and fourth possible orientations of the display. For example, Fuchimukai describes a digital camera including a conductive ball contained within a guide chamber that is used to detect the orientation of the camera when a picture is taken. Figures 4-8 describe a guide chamber with four extending portions. When the conductive ball moves to any of the first, second, third, or fourth extending portions of the guide chamber it creates a short between any two of the four conductive plates 51-54. When a short is created between any two of the conductive plates a signal is generated that tells the processor of the camera its current orientation paragraphs 0044-0047. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the extending portions of the guide chamber as taught by Fuchimukai into the guide chamber and combination moveable magnet and Hall sensors arrangement as taught by Kfoury in view of Smith in order to keep the number of false orientation signals to a minimum by spreading out the Hall sensors and making the magnet move down a path corresponding to the correct orientation before it activates a Hall sensor that will potentially change the orientation of the display.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kfoury in view of Yuyama et al. (US 5,612,732) and further in view of Smith (US 2002/0033836).

With regard to claim 5, Kfoury describes a picture display device in a mobile terminal comprising: a direction detecting section for detecting the direction in which the

mobile terminal is placed and generating first, second, third, and selectively fourth direction detecting signals; a display controller for outputting display data in an upright direction when a first direction detecting signal is generated, in a direction turned 90° clockwise when a second direction detecting signal is generated, in a direction turned 180° when a third direction detecting signal is generated, and in a direction turned 270° clockwise when none of the first, second and third direction detecting signals are generated, or selectively when a fourth direction detecting signal is generated; and a display section for displaying the display data, as described in the rejection of claim 1.

Kfoury doesn't describe that the picture display device in a mobile terminal also comprises a camera module for taking an image signal and an image processing section for processing the image signal taken by the camera module in a display picture size.

However, Yuyama describes a mobile device that contains a camera module for taking an image signal and an image processing section for processing the image signal taken by the camera module in a display picture size. For example, Yuyama illustrates a block diagram of the portable display device in Figure 3. Figure 3 offers camera section 6, which consists of a lens 25, a CCD 26, and an ADC 27. The CCD generates an electric signal based on the intensity of light focused on the lens, and the ADC converts the analog video signal from the CCD into a digital signal that is processed in the image compression section 9, which can also be considered the image processing section column 5 lines 37-45. This image can then be correctly displayed on the LCD section 5 column 5 lines 22-35. It would have been obvious to one of ordinary skill in

the art at the time of the invention to include in Kfoury the camera module as taught by Yuyama in order to increase the functionality of Kfoury's electronic device and therefore make it more appealing and more useful to the average consumer.

Kfoury in view of Yuyama doesn't describe that the display controller determines a display picture size to be output based upon the detected device direction or displaying data in the determined display size based upon the detected device direction.

However, Smith describes a device and method for changing the orientation and configuration of a display device in an electronic device. Smith describes that the display device will automatically adjust the orientation and/or configuration of the viewing area of the display through an orientation sensing/switching device within the electronic device that senses the orientation of the electronic device with respect to a reference position (paragraphs 0006 and 0009). Smith further describes that the orientation sensing/switching device can be a mercury switch, mechanical gravity switch, or a combination moveable magnet and Hall effect switch (paragraph 0018). Finally, Smith discloses Figures 3 and 4, which describe first and second display modes for the device. Figure 3 illustrates a full screen display, while Figure 4 illustrates a rotated display where some of the effective viewing area is not utilized as the rotated displayed image is only fully visible if it is reduced in size (paragraph 0017). It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Kfoury in view of Yuyama the method of generating reduced sized display data and displaying the reduced sized display data in an upright direction or a direction turned 180° when a first or third direction is detected, respectively, as taught by Smith,

in order to allow a complete image to be displayed on the display device regardless of whether the image is designed to fit a landscape or portrait display and whether the device is oriented in a landscape or portrait orientation. The advantage of this flexibility is that a user will always be able to see an image in its original form (e.g. no distortion or cropping is applied to the image in an effort to make it fit on the display screen).

Concerning claim 6, Kfoury describes a picture display device in a mobile terminal comprising: a direction detecting section for detecting the direction in which the mobile terminal is placed and generating first, second, third, and selectively fourth direction detecting signals; a display controller for outputting display data in an upright direction when a first direction detecting signal is generated, in a direction turned 90° clockwise when a second direction detecting signal is generated, in a direction turned 180° when a third direction detecting signal is generated, and in a direction turned 270° clockwise when none of the first, second and third direction detecting signals are generated, or selectively when a fourth direction detecting signal is generated; and a display section for displaying the display data, as described in the rejection of claim 1.

Kfoury doesn't describe that the picture device in the mobile terminal also comprises a tuner for receiving a composite television video signal broadcast on a selected channel; a decoder for decoding the composite video signal to generate an analog video signal and a synchronizing signal; and a video processing section for converting the analog video signal into a digital video data, processing the digital video data in a frame size and outputting a frame video signal and user data in the frame.

However, Yuyama describes just such a mobile terminal. For example, Yuyama offers Figure 3, which is a block diagram of a portable display device. Figure 3 is described as representing the portable television receiver shown in Figures 1 and 2. The portable television receiver 1 comprises a TV tuner section 4 and a liquid-crystal display section 5 column 4 lines 64-67 and column 5 line 1. The TV tuner section 4 is made up of a tuner 21 and an ADC 22. The tuner 21 selectively receives a particular TV wave an outputs the received signal to the display driver 23 of the LCD section 5. The display driver 23 can be considered a decoder as it converts the supplied video into an analog RGB signal and outputs this analog signal to the LCD in a format that fits the size of the LCD. A video processing section also exists as the tuner also outputs the signal to the image compression section 9. The image compression section, or image processing section, takes in and processes the signal from the ADC 22. Once the processing is complete the data is stored in video memory column 5 lines 12-35. It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Kfoury the TV tuner module as taught by Yuyama in order to increase the functionality of Kfoury's electronic device and therefore make it more appealing and more useful to the average consumer.

Kfoury in view of Yuyama doesn't describe that the display controller determines a display picture size to be output based upon the detected device direction or displaying data in the determined display size based upon the detected device direction.

However, Smith describes a device and method for changing the orientation and configuration of a display device in an electronic device. Smith describes that the

display device will automatically adjust the orientation and/or configuration of the viewing area of the display through an orientation sensing/switching device within the electronic device that senses the orientation of the electronic device with respect to a reference position (paragraphs 0006 and 0009). Smith further describes that the orientation sensing/switching device can be a mercury switch, mechanical gravity switch, or a combination moveable magnet and Hall effect switch (paragraph 0018). Finally, Smith discloses Figures 3 and 4, which describe first and second display modes for the device. Figure 3 illustrates a full screen display, while Figure 4 illustrates a rotated display where some of the effective viewing area is not utilized as the rotated displayed image is only fully visible if it is reduced in size (paragraph 0017). It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Kfoury in view of Yuyama the method of generating reduced sized display data and displaying the reduced sized display data in an upright direction or a direction turned 180° when a first or third direction is detected, respectively, as taught by Smith, in order to allow a complete image to be displayed on the display device regardless of whether the image is designed to fit a landscape or portrait display and whether the device is oriented in a landscape or portrait orientation. The advantage of this flexibility is that a user will always be able to see an image in its original form (e.g. no distortion or cropping is applied to the image in an effort to make it fit on the display screen).

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Washburn whose telephone number is (571) 272-5551. The examiner can normally be reached on Monday through Friday 8:30 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DW

DW

2/26/07

ULKA CHAUHAN
SUPERVISORY PATENT EXAMINER